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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,635	05/11/2005	Tadayuki Imai	14321.74	8645

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WORKMAN NYDEGGER
(F/K/A WORKMAN NYDEGGER & SEELEY)
60 EAST SOUTH TEMPLE
1000 EAGLE GATE TOWER
SALT LAKE CITY, UT 84111

EXAMINER

ULLAH, AKM E

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 02/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/534,635

Applicant(s)

IMAI ET AL

Examiner

Akm Enayet Ullah

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-11 and 13-15 is/are rejected.
- 7) ☒ Claim(s) 4 and 12 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/15/06</u> . | 6) <input type="checkbox"/> Other: ____. |

Detailed Action

Applicant cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Status of the Application

Claims 1-15 are pending in this application.

Claims 4 and 12 are objected.

Claims 1-3,5-11 and 13-15 are rejected under 35 USC 102 and 103

If applicant is aware of any prior art or any other co- pending application not already of record, he/she is reminded of his/her duty under 37 CFR 1.56 to disclose the same.

If applicant provides prior art, he/she is requested to cite it on form PTO-1449 in accordance with the guideline set forth in MPEP 609.

Claimed Foreign Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 and 5- 7 and 13-14 are rejected under 35 U.S.C. 102 (b) as being clearly anticipated by Hulliger et al (Journal of Crystal Growth, January 1990, Vol. 99, No.1-4, Pages 634 to 637.

Hulliger et al disclose (**regarding claim 1**) an optical waveguide material comprising a crystal having a composition of KTaO_3 (KT) mentioned on page 633:

--- wherein at least one element selected from the group consisting of Zr, Hf and Sn substitutes for a portion of one element of the constituent elements of KT, and (page 635, last paragraph)

--- the crystal has the same perovskite type crystal structure as KT (column 1, line 4 of page 634 of the reference).

--- **Regarding claim 2**, wherein the crystal has a composition obtained by replacing a portion of one element of the constituent elements of KT with other element mentioned on page 635, last paragraph.

--- **Regarding claims 3 and 13**, wherein the optical waveguide material is made up of a crystal ($\text{KT}_{1-x}\text{Nb}_x\text{O}_3$; KTN: $0 \leq x \leq 1$) having a composition obtained by substituting Nb for a portion of Ta of KT mentioned on pages 635, last paragraph and pages 636 first column.

-- **Regarding claims 5 and 14**, a method of manufacturing an optical waveguide material comprising a crystal having a composition of KTaO_3 (KT) and has the perovskite type crystal structure (mentioned page 633) comprising:

---- a first step of mixing a raw material containing at least selected from the group consisting of Zr, Sn and Hf and main raw material containing K and Ta mentioned on page 635

---- a second step of heating the mixed raw materials to prepare high-temperature melt mentioned on page 633

--- a third step of cooling the high-temperature melts to grow a crystal mentioned on page 633

Regarding claim 6, wherein the crystal of the waveguide material has composition obtained by replacing a portion of one element of the constituent elements of KT with other element mentioned on pages 635, last paragraph of the reference.

Regarding claim 7, wherein the first step includes further mixing of a raw material containing Nb in the main raw materials mentioned on page 635.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over in Hulliger et al (Journal of Crystal Growth, January 1990, Vol. 99, No.1-4, Pages 634 to 637view of Imaeda et al (USP NO. 6,447,606).

Hulliger et al mentioned in above rejection.

Hulliger et al fails to mention the use of lithium (Li) as claimed in claim 8.

Imaeda et al is the evidence that ordinary skill in the art would find a reason, suggestion or motivation to have further mixing a raw material containing Li with the main materials as claimed in the device.

One of ordinary skill in the art would have found it obvious to use the optical waveguide material of Imaeda et al in Hulliger et al since, column 4 of Imaeda et al mentioned regarding Li could be used as an optical waveguide material.

It is noted that applicant has not described such material (Li) as being critical or yielding unexpected benefits. Certainly a person of ordinary skill in the art found it beneficial to achieve such substitute (Li material) for the optical waveguide material in the instant application.

Claims 9-11 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over in Hulliger et al (Journal of Crystal Growth, January 1990, Vol. 99, No.1-4, Pages 634 to 637view of Nishizawa et al (USP NO. 6,873,751).

Hulliger et al disclose an optical waveguide material comprising a crystal having a composition of KTaO_3 (KT) mentioned on page 633:

--- wherein at least one element selected from the group consisting of Zr, Hf and Sn substitutes for a portion of one element of the constituent elements of KT, and (page 635, last paragraph)

--- the crystal has the same perovskite type crystal structure as KT (column 1, line 4 of page 634 of the reference).

Reference Hulliger et al does not explicitly disclose the optical waveguide having core and cladding whose refractive index is lower than that of the core and clad is controlled by the amount of at least one element from the group consisting of Or, Hf, and Sn.

Columns 7-8 of Nishizawa et al is the evidence that ordinary skill in the art would have found a reason, suggestion or motivation to have disclose the optical waveguide having core and cladding whose refractive index is lower than that of the core and clad is controlled by the amount of at least one element from the group consisting of Zr, Hf, and Sn.

One of ordinary skill in the art would have found it obvious to use such teachings of Nishizawa et al in Hulliger et al since, columns 7-8 mentioned regarding these material and the stress alleviating effect sufficient column 8, lines 40-45 of the reference).

Objection to Claim, Allowable Subject Matter

Claims 4 and 12 are is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

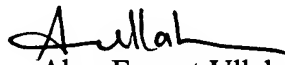
None of the reference discloses alone or in combination the claimed in invention as claimed in claims 4 and claim 12

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Akm Enayet Ullah whose telephone number is 571-272-2361. The examiners can normally be reached on Monday through Wednesday from 5:30 am to 4:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick, can be reached on Monday through Friday whose telephone number is 571-272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Akm Enayet Ullah
Primary Examiner
Art Unit 2874

Aullah

February 14, 2006